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GGSIPU chamistry 2008

1. Ethyl acetate is obtained when methyl magnesium bromide reacts with

 (a) ethyl formate

 (b) ethyl chloformate

 (c) acetyl chloride

 (d) carbon dioxide

2. The mopst stable hybrid is

 (a) NH_3 (b) PH_3

 (c) AsH_3 (d) SbH_3

3. The ratio of amounts of H_2S needed to precipitate all the metal ions from 100 mLof 1 M $AgNO_3$ and 100 mL of $CuSO_4$ will be

 (a) 1:1 (b) 1:2

 (c) 2:1 (d) None of these

4. If the electronegativity difference between two atoms A and B is 2.0,then the percentage of co-valent character in the molecule is

 (a) 54% (b) 46%

 (c) 23% (d) 72%

5. Which of the following reaction defines ΔH^0_f ?

 (a) $C_{(diamond)} + O_2(g) \rightarrow CO_2(g)$

 (b) $\frac{1}{2}H_2(g) + \frac{1}{2}f_2(g) \rightarrow HF(g)$

 (c) $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$

 (d) $CO(g) + \frac{1}{2}O_2(g) \rightarrow CO_2(g)$

6. Formaldehyde polymerizes to form glucose according to the reaction

 $6HCHO \quad C_6H_{12}O_6$

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The theoretically computed equilibrium constant for this reaction is found to be $6x10^{22}$.If 1 M solution of glucose dissociates according to the above equilibrium ,the concentration of formaldehyde in the solution will be

(a) $1.6x10^{-2}$ M
(b) $1.6x10^{-4}$ M
(c) $1.6x10^{-6}$ M
(d) $1.6x10^{-8}$ M

7. The electronic configuration of a depositive ion M^{2+} is 2,8,14 and its mass number is 56.The number of neutrons present is :

(a) 32 (b) 42

(c) 30 (d) 34

8. If X is the total number of collisions which a gas molecule register with others per unit time under particular conditions ,then the collision frequency of the gas containing N molecules per unit volume is

(a) X/N (b) NX

(c) 2/NX (d) NX/2

9. A hypothetical reaction $A_2+B_2 \rightarrow 2AB$ follows the mechanism as given below,

$A_2 \rightleftharpoons A+A$ (fast)

$A+B_2 \rightarrow AB+B$ (slow)

$A+B \rightarrow AB$ (fast)

The order of the overall reaction is

(a) 2
(b) 1
(c) $1\frac{1}{2}$
(d) 0

10. The mass of helium atom of mass number 4 is 4.0026 amu,while that of the neutron and proton are 1.0087 and 1.0078 respectively on the same scale.Hence,the nuclear binding energy per nucleon in the helium atom is nearly

(a) 5 MeV (b) & MeV

(c) 10 MeV (d) 14 MeV

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11. Which of the following statements is correct ?Dielectric constant of H_2O

(a) increases with dilution

(b) decreases with dilution

(c) is unaffected on dilution

(d) None of the above

12. For the square planar complex [M(a)(b)(c)(d)] (where, M = central metal and a,b,c and d are monodentate ligands),the number of possible geometrical isomers are

(a) 1 (b) 2

(c) 3 (d) 4

13. Potash alum dissolves in water to give a/an

(a) acidic solution of H_2SO_4

(b) alkaline solution

(c) acidic solution of HCL

(d) neutral solution

14. The discovery of which of the following group of elements gave death blow to the Newland's law of octaves ?

(a) Inert gases (b) Alkaline earths

(c) Rare earths (d) Actinides

15. Van't Hoff factor more than unity indicates that the solute in solution has

(a) dissociated (b) associated

(c) both (a) and (b)

(d) cannot say anything

16. How many number of atoms are there in a cube based until cell having one atom on each corner and two atoms on each body diagonal of cube ?

(a) 8 (b) 6

(c) 4 (d) 9

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17. Bleeding due to a cut can be stopped by applying ferric chloride solution in the labrotory.This is due to

(a) co-agulation of negatively charged blood particles by Fe^{3+} ions

(b) co-agulation of positively charged blood particles by CL^-

(c) reaction taking place between ferric ions and the haemoglobin forming a complex

(d) common element,iron,in both $FeCL_3$ and haemoglobin.

18. Which one of the following solutions will have highest conductivity ?

(a) 0.1 M CH_3COOH (b) 0.1 M NaCL

(c) 0.1 M KNO_3 (d) 0.1 M HCL

19. One of the following metals forms a volatile compound and this property is taken advantage for its extraction.This metal is

(a) iron (b) nickel

(c) cobalt (d) tungsten

20. If Na^+ ion is large than Mg^{2+} ion and S^{2-} ion is larger than CL^- ion,which of the following will be stable soluable in water ?

(a) Sodium chloride

(b) Sodium sulphide

(c) Magnesium chloride

(d) Magnesium sulphide

21. Impurities of Cu and Ag from gold are removed by

(a) boiling impure gold with dil. H_2SO_4

(b) boiling impure gold with conc. H_2SO_4

(c) electrolytically

(d) both (b) and (c)

22. Which of the following salt would give SO_2 with hot and dil .H_2SO_4 and also decolourises Br_2 water ?

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(a) Na_2SO_3 (b) $NaHSO_4$

(c) Na_2SO_4 (d) Na_2S

23. If two compounds have the same empirical formula but different molecular formulae,they must have

(a) different percentage composition

(b) different molecular weights

(c) same viscocity

(d) same vapour density

24. Among the following which one has weakest carbon-halogen bond ?

(a) Benzyl bromide (b) Bromobenzene

(c) Vinyl bromide (d) Benzyl chloride

25. Petrochemicals can be used to prepare

(a) synthetic fibres (b) pesticides

(c) plastics (d) All of these

26. tert-butyl methyl either on heating with anhydrous HI in either gives

(a) $CH_3OH + (CH_3)_3CL$

(b) $CH_3I + (CH_3)_3COH$

(c) $CH_3I + (CH_3)_3 CL$

(d) None of the above

27. The correctly reported answer of the addition of 4.523,2.3 and 6.24 will have significant figures

(a) two (b) three

(c) four (d) five

28. What happen if CCL_4 is treated with $AgNO_3$?

(a) A white ppt. of AgCL will form

(b) NO_2 will be evolved

(c) CCL_4 will dissolve in $AgNO_3$

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(d) Nothing will happen

29. ^{23}Na is more stable isotope of Na.Find out the process by which $^{24}_{11}Na$ can undergo radioactive decay

(a) $^{-}$ emission (b) ~-emission

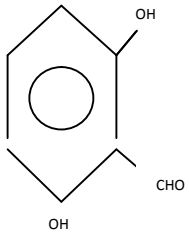
(c) $^{+}$ emission (d) K electron capture

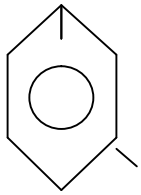
30. The heat of combusation of solid benzoic acid at constant volume is – 321.30 kJ at 27^0 C.The heat of combustion at constant pressure is :

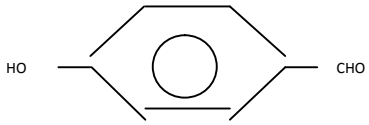
(a) - 321.30 – 300 R (b) - 321.30 + 300 R

(c) - 321.30 – 150 R (d) - 321.30 + 900 R

31. In which of the following compounds –OH group is least reactive ?

(a) 

(b) 

(c) 

(d) All are equally reactive

32. Iodoform is obtained is obtained when ethanol is heated with

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(a) KI and aq KOH (b) I_2 and aq KOH

(c) I_2/aq KI (d) Hi and HIO_3

33. The total number of acylic isomers including the stereoisomers (geometrical and optical),with the molecular formula C_4H_7CL is

(a) 12 (b) 11 (c) 10 (d) 9

34. The alkyl halies that can be made by free radical halogenations of alkanes are

(a) RCL, and RBr but not RF and RI

(b) RF,RCL and R Br but not RI

(c) RF,RCL,RBr,RI

(d) RF,RCL and RI but RBr

35. Silica is a/an

(a) acidic flux only

(b) gangue only

(c) basic flux only

(d) both gangue and acidic flux

36. The nodes present in 3p-orbitals are

(a) one spherical,one planar

(b) two spherical

(c) two planar

(d) one planar

37. The number of ~ and -particles emitted in nuclear reaction $_{90}Th^{228} \rightarrow {}_{83}Bi^{212}$ are respectively

(a) A is more than concentrated than B

(b) B is more than concentrated than A

(c) concentration of A is equal to concentration of A

(d) it is not possible to compare the concentrations

38. Two bottles contains 1 M and 1 m aqueous solution of sulphuric acid respectively

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(a) A is more concentrated than B

(b) B is more concentrated then A

(c) concentration of A is equal to concentration of B

(d) it is not possible to compare the concentrations

39. A salt of treatment with dil. HCL gives a pungent smelling gas and yellow precipitate.The salt gives green flame test and yellow precipitate with potassium chromate the salt is

(a) $NiSO_4$ (b) BaS_2O_3

(c) PbS_2O_3 (d) $CuSO_4$

40. Which of the oxide of manganese is amphoteric ?

(a) MnO_2 (b) Mn_2O_3

(c) Mn_2O_7 (d) MnO

41. Which of the following alkenes os mostr reactive towards cationic polymerzination ?

(a) $CH_2 = CHCH_3$ (b) $H_2C = CHCL$

(c) $H_2C = CHC_6H_5$ (d) $H_2C = CHCO_2CH_3$

42. An organic compound ,C_3H_6O does not give a precipitate with 2,4-dinitrophenyl hydrazine reagent and does not react with metallic sodium.It could be

(a) $CH_3 - CH_2 - CHO$

(b) $CH_2 = CH - CH_2OH$

(c) $CH_3 - CO - CH_3$

(d) $CH_2 = CH - O - CH_3$

43. Oxidation of 1-butene with hot $KMnO_4$ solution produces

(a) $CH_3CH_2COOH + HCOOH$

(b) $CH_3\ CH_2COOH + CO_2$

(c) $CH_3\ COOH + CO_2$

(d) $(CH_3)_2\ C = O + CO_2$

44. A mixture of 1-chlorobutane and 2-chloro-butane when treated with alcoholic KOH gives

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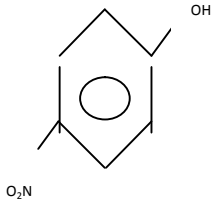
(a) 1-butene

(b) 2-butene

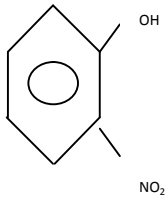
(c) isobutylene

(d) mixture of 1-butene + 2-butene

45. Out of the two compounds shown below,the vapour pressure of B at a partiqular temperature is expected to be



and



(A) (B)

(a) Higher than that of A
(b) Lower than that of B
(c) Same as that of A
(d) Can be higher or lower depending upon the sije of the vassel

46. Roasted tin stone one after washing with water is known as

(a) block tin (b) white tin

(c) black tin (d) granulated tin

47. Which of the following has strongest hydrogen bonding ?

(a) Ethylamine (b) Ammonia

(c) Ethyl alcohol (d) Diethyl ether

48. Consider the following statements :

The rate law for the acid catalysed hydrolysis of an ester being given as

Rate = $K[H^+]$ [ester] = k'[ester] .If the acid concentration is doubled at constant ester concentration

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(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1,2 and 3

49. A fibrous mineral which can withstand red hot flames without any damage is :

(a) talc (b) glass wool

(c) soap stone (d) asbestos

50. When 0- or p-phenolsulphonic acid is treated with bromine water,the product formed is :

(a) 2,4-dibromophenol

(b) 2,4,6-tibromophenol

(c) 3-bromophenol boric acid

(d) 3,5-dibromophenol

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